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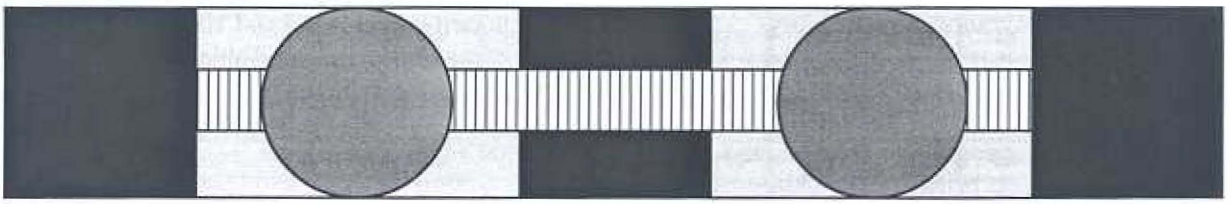

Introduction

Close your eyes. Envision a succulent two-inch slab of dripping-rare prime rib. Is your stomach rumbling, your appetite peaked, or are you offended since your fundamental belief system precludes harming animals? A single image or idea can create many different feelings or interpretations. Consider the diversity within your own organization, campus, or community. Does everyone agree on what is appropriate, acceptable, appetizing, or attractive? An image pleasing to one group of people may alienate or even seriously offend many others. Something as simple as color may elicit dramatically different mental images. For example, in the U.S., white is generally associated with purity, but in Japan it represents death (Chau et al, 2002).

Herein lays the danger inherent in cross-cultural Web site design: the audience must be considered. Good designers know that ascertaining the needs and preferences of people who are or will be the users of a Web site, database, or fishing pole, is critical to success. The apparent simplicity of this task belies its daunting nature. The complexity of defining user preferences can be appreciated by considering the vast number of sub-groups composing the global community, each with its unique array of tastes, preferences, and mores. Failure at this rudimentary level will nullify even the boldest and brightest design ideas.

In 2005, roughly 75% of the Internet population is estimated to be non-English speaking (Marcus, 2003). Nevertheless, language differences are not the real challenge, as spoken language is an easy hurdle to overcome. No imagination or deep intellectual discovery is necessary for linguistic translations. Most Web browsers are equipped with multi-lingual support. A more vital and infinitely more delicate task is to understand the unspoken language of a culture, which is deeply rooted in a system of values, beliefs, and expectations that ultimately shapes a users' preferences.

Culture is not defined merely by ethnicity and geographic locale. In truth, most nation-states consist of many different cultures. Imagine how a native of rural Louisiana perceives the fast-paced atmosphere of Manhattan or the grid locked freeways of Los Angeles. Audiences may be similar in age, location, gender, and other demographics, but their preferences and predilections can be drastically different (Calongne, 2001). These observations only begin to demonstrate the conundrum underlying the design of an appealing global Web site. From a management perspective, the importance of understanding the impact of cultural rifts on Web site usability is grossly underemphasized. "Developers face an uphill battle to get budgets for culture-oriented research and development accepted" (Marcus, 2002, p. 26).

Competition on the Internet is fierce. Consumer trust is not easy to secure. The trend toward globalization makes it critical for any firm aspiring to create or maintain a World Wide Web presence not only to educate itself about cultural semantics, but also to aggressively incorporate the preferences of its target audience into the design. Adapting sites to the multiplicity of cultural biases requires time and dedicated resources, but the potential benefits of increased Web usage, market expansion, and customer satisfaction more than justifies this investment. Casual surfers are significantly more likely to become active visitors, or loyal customers, if a site is consistent with their cultural expectations.

This paper addresses the question, "What

impact does culture have on Web site design?" It provides Web designers with relevant definitions concerning cultural differences along with suggestions on how culture affects Web site design. Decision makers will develop a greater appreciation of the importance of cultural accommodations, motivating them to allocate the resources necessary to allow designers to properly assess a company's cross-cultural compatibility.

Assessing Cultural Attributes

As mentioned, merely recognizing differences such as language, geographic location, and religious orientation is inadequate. Although these play a role, differences in attitudes, expectations, and the nature of social structures and relationships are of greater concern. Quantifying such abstract social attributes is difficult but necessary to conduct any meaningful analysis.

• Hofstede's dimensions

Geert Hofstede, a respected authority in the field of global culture, defined five cultural dimensions. Working as a psychologist for IBM, Hofstede conducted research from 1967 to 1973 in which he collected data from over 100,000 IBM employees from 40 different countries to examine differences in values and attitudes (Hill, 2001). A decade later, between 1978 and 1983, Hofstede refined and expanded his study to include 53 countries (Marcus and Gould, 2000). The five dimensions that Hofstede examined were power distance, collectivism vs. individualism, femininity vs. masculinity, uncertainty avoidance, and long-vs. short-term orientation. These dimensions are explained in the following subsections, and Table 1 gives their general definitions. Each country surveyed was given a numeric rating between 0 and 100 for each one of the cultural dimensions. Table 2 shows a partial list of the subject countries including their scores and relative ranks on each of Hofstede's five dimensions.

Power Distance. Power distance (PD), or power distance index (PDI), measures the socio-economic separation between people of greater and lesser power within a community. In particular, it measures people's expectations regarding power inequalities. It is "the extent to which less powerful members expect and accept unequal power distribution within a culture" (Marcus and Gould, 2000, p. 35). A high PD score indicates a greater degree of separation. For example, India, which once had a formal caste system, has a PD score of 77 and is ranked 10th on the PDI. More socially mobile countries have lower PD scores. The U.S., for instance, is ranked 38th with a score of 40.

Cultural power distance significantly affects

Table 1. Hofstede's Dimensions of Culture

Cultural Dimensions	Descriptions
Power Distance (PD, PDI)	The extent to which members of a society expect and accept inequalities in power distribution. Higher score signifies greater inequality.
Individualism vs. Collectivism (IDV)	The measure of a society's emphasis on individual rights, freedoms, and achievements vs. the greater good of the society as a collective. Higher score signifies greater tendency towards individualism.
Masculinity vs. Femininity (MAS)	The degree to which a society emphasizes the distinction between traditional gender roles. Higher scores mean greater distinction, lower scores signify blurring of traditional roles.
Uncertainty Avoidance (UA, UAI)	The extent to which members of a society tolerate uncertainty and ambiguity. Higher scores signify lower tolerance.
Long vs. Short-term Orientation (LTO)	a.k.a. Confucian Dynamism, LTO benchmarks a society's attitude towards time, patience, and emphasis on tradition vs. demand for immediate results. Higher scores mean a greater degree of patience.

Table 2. Partial List of Countries Rated by Hofstede's Dimensions of Culture

Adapted from Marcus and Gould 2000, p. 45

	PDI		IDV		MAS		UAI		LTO	
	rank	score	rank	score	rank	score	rank	score	rank	score
Arab Countries	7	80	26/27	38	23	53	27	68		
Argentina	35/36	49	22/23	46	20/21	56	10/15	86		
Australia	41	36	2	90	16	61	37	51	15	31
Belgium	20	65	8	75	22	54	5/6	94		
Brazil	14	69	26/27	38	27	49	21/22	76	6	65
Canada	39	39	4/5	80	24	52	41/42	48	20	23
Chile	24/25	63	38	23	46	28	10/15	86		
Columbia	17	67	49	13	11/12	64	20	80		
Denmark	51	18	9	74	50	16	51	23		
East Africa	21/23	64	33/35	27	39	41	36	52		
Finland	46	33	17	63	47	26	31/32	59		
France	15/16	68	10/11	71	35/36	43	10/15	86		
Germany FR	42/44	35	15	67	9/10	66	29	65	14	31
Great Britain	42/44	35	3	89	9/10	66	47/48	35	18	25
Greece	27/28	60	30	35	18/19	57	1	112		
Hong Kong	15/16	68	37	25	18/19	57	49/50	29	2	96
India	10/11	77	21	48	20/21	56	45	40	7	61
Indonesia	8/9	78	47/48	14	30/31	46	41/42	48		
Iran	29/30	58	24	41	35/36	43	31/32	59		
Ireland (Rep of)	49	28	12	70	7/8	68	47/48	35		
Israel	52	13	19	54	29	47	19	81		
Italy	34	50	7	76	4/5	70	23	75		
Jamaica	37	45	25	39	7/8	68	52	13		
Japan	33	54	22/23	46	1	95	7	92	4	80
Mexico	5/6	81	32	30	6	69	18	82		
Netherlands	40	38	4/5	80	51	14	35	53	10	44
Norway	47/48	31	13	69	52	8	38	50		
Pakistan	32	55	47/48	14	25/26	50	24/25	70	23	0
Philippines	4	94	31	32	11/12	64	44	44	21	19
South Africa	35/36	49	16	65	13/14	63	39/40	49		
South Korea	27/28	60	43	18	41	39	16/17	85	5	75
Spain	31	57	20	51	37/38	42	10/15	86		
Sweden	47/48	31	10/11	71	53	5	49/50	29	12	33
Switzerland	45	34	14	68	4/5	70	33	58		
Taiwan	29/30	58	44	17	32/33	45	26	69	3	87
Thailand	21/23	64	39/41	20	44	34	30	64	8	56
Turkey	18/19	66	28	37	32/3	45	16/17	85		
USA	38	40	1	91	15	62	43	46	17	29
Venezuela	5/6	81	50	12	3	73	21/22	76		
West Africa	10/11	77	39/41	20	30/31	46	34	54		
Yugoslavia	12	76	33/35	27	48/49	21	8	88		

access to information on a Web site (Marcus and Gould, 2000). A site's content should be equally available to all users in low PD cultures. Information visible to all, but accessible by only a few may be offensive. Members of a low PD culture will demand a greater degree of freedom to roam and explore. Users in a high power distance country such as Panama (95) would not expect the same fullness of available information as users in a low PD country like Norway (31). Hence, viewing restrictions will not be as drastic in low PD cultures as in high ones.

Conversely, in a high PD society it is perfectly acceptable, if not expected, that access to certain information is reserved for those of higher social standing. Emphasis is placed on authority and expertise. A Web site should employ access restrictions to information based on a user's position in the social hierarchy, otherwise it may be considered a breach of etiquette. Web sites frequently include official stamps, logos, and certifications, and security is explicitly enforced (Marcus and Gould, 2000).

Individualism vs. collectivism. Cultures scoring high in individualism (IDV) emphasize personal freedom and advancement. People in such societies place great value on their own well-being and that of their immediate family. Individualistic cultures measure success by individual achievements rather than the betterment of the community at large and tend to be more materialistic. Nations with democratic political structures tend to score higher on individualism. The U.S. ranks number one in individualism, with a score of 91.

Common characteristics of Web sites created for high IDV cultures include controversial or extreme statements and imagery, emphasis on youth, action, and change (vs. age, history and tradition), and images of people rather than, or in addition to, inanimate objects (Marcus and Gould, 2000). Cultures with low IDV scores emphasize the good of the whole community. Organizational goals are stressed above personal goals, and success is rarely measured by material value. Web sites catering to low IDV cultures commonly have images of products or landmarks rather than people. Anything controversial or inflammatory is deliberately avoided (Marcus and Gould, 2000).

Femininity vs. masculinity. The femininity/masculinity dimension, denoted MAS, measures a society's degree of distinction between traditional gender roles. High MAS cultures have sharply differentiated gender roles, and traditional masculine values such as competitiveness and effective exercise of power determine cultural ideals (Hill, 2001). Japan is ranked number one in MAS, with a score of 95.

Web sites that appeal to high MAS cultures include games and competition as a means of motivation, providing quick rewards, and a system of navigation based on exploration and control (Marcus and Gould, 2000). In cases of high MAS scores, designing separate sites for men and women may be prudent. Excite, for instance, maintains two separate Web sites in Japan, one catering to males, the other to females (Marcus, 2003).

Low MAS cultures tend to de-emphasize traditional male and female stereotypes. Sweden and Norway have by far the lowest MAS rating, scoring 5 and 8, respectively. Low MAS Web site design concepts include promotion of cooperation and support rather than competitiveness, and using poetic and pleasing aesthetics as a means of motivation (Marcus and Gould, 2000).

Uncertainty avoidance. Uncertainty avoidance (UA), or the uncertainty avoidance index (UAI), measures the extent to which the members of a culture accept ambiguity and tolerate uncertainty (Hill, 2000). Structure and instruction are highly prized in high UA cultures. Predictable patterns and long-term commitments in business and relationships are prevailing social mores. Great value is placed on punctuality, formality, job security, and retirement benefits. High UA cultures prefer a limited number of alternatives, as this simplifies decision-making and reduces ambiguity. Greece is the top-ranked UA country, with an astounding score of 112, well above the prescribed boundary of the index. Belgium (94), Japan (92), Spain, and France (both at 86) all score high in UA (see Table 2).

Regarding Web design, the key concept for high UA societies is simplicity. Choices offered to the user should be limited and the results of those choices should be easily predictable through redundant visual cues such as color and typography (Marcus and Gould, 2000). Lower UA cultures are characterized by a higher propensity for risk-taking and more resilience to change. They prefer to have a high number of alternatives available and will tolerate a degree of mystery and surprise. Low-scoring UA

societies include Jamaica (13), Denmark (23), Hong Kong (29), and Ireland (35). Web sites designed for low UA audiences have a greater degree of complexity. Options and content should be maximized and navigational schemes should be conducive to exploration and discovery (Marcus and Gould, 2000).

Long vs. short-term orientation. Long-term orientation (LTO), also referred to by Hofstede as Confucian dynamism, addresses a society's attitudes towards time, persistence, respect for tradition, and reciprocation of gifts and favors (Hill, 2000). Only 23 of the subject countries were surveyed with respect to LTO. The main distinction is between Eastern cultures with a Confucian belief structure and western Judeo-Christian and Muslim cultures (Marcus, 2003). Hofstede asserts that Eastern cultures are driven by the practice of and desire for virtuous behavior, whereas Western cultures are more interested in the belief and pursuit of truth (Marcus, 2003). Due to its history, China ranks highest in LTO (118), along with Hong Kong (96), Taiwan (87), and Japan (80). The lowest LTO score belongs to the predominantly Muslim nation of Pakistan (0). Canada and the U.S. also score relatively low in LTO (23 and 29, respectively).

Design considerations for high LTO cultures include focusing the site's content on practice and patience in achieving goals and using relationships as a means of establishing credibility (Marcus and Gould, 2000). On the other hand, low LTO cultures expect immediate results from their actions and prefer rules rather than relationships as a basis for credibility. Web sites designed for low LTO cultures need to provide consistent, regular feedback.

Table 3 summarizes suggestions for how specific elements of Web site design should be considered in relation to high and low scores in each of the aforementioned cultural dimensions. The considerations in Table 3 were compiled from *Crosscurrents: Cultural Dimensions and Global Web User-Interface Design* (Marcus and Gould, 2000), and Are *You Cultured? Global Web Design and the Dimensions of Culture* (Marcus, 2003).

• Practical examples

To clearly illustrate the practical implications of Hofstede's dimensions, the home pages of equivalent bureaus in the Indonesian and Irish governments were compared and contrasted. The scores for each cultural dimension for the two countries were as follows: Indonesia scored 78 for PD, 14 for IDV, 46 for MAS, and 48 for UA, and Ireland scored 28 for PD, 70 for IDV, 68 for MAS, and 35 for UA. Neither country was scored for LTO. These two countries have stark contrasts in scores, particularly with regard to PD and IDV. Figure 1 features a screenshot of the home page for the Irish social services inspectorate, and Figure 2 shows a screenshot of Indonesia's corresponding office, SIDUGA taken as of November 2003.

It appears contradictory that Indonesia, with its low IDV score, features images of people on its Web site, but closer examination reveals the person in the foreground is an official of the state, a representative of the collective. The page emphasizes official seals and logos, which is indicative of a low IDV culture. The person of power in the image is female, and the man and woman are of equal height, consistent with the blurring of traditional gender roles that occurs in low MAS cultures. In contrast, the heights of the two individuals represented by the graphic in the upper right corner of the high MAS Irish site are noticeably different. The difference in UA is also evidenced by the number of alternatives presented to users with respect to navigation. Eleven links are offered on the Indonesian site, while the Irish site offers 33 (some of which are contained on the rollover menus to the right).

The power distance dimension is even more clearly illustrated by these two Web sites. On the Indonesian site, the space occupied by the powerful official in the image is nearly equal to the space occupied by four regular citizens. The picture of the family is faded and almost transparent. The most subtle, yet powerful representation of high PD in this image is the shaded rectangular area, whose border is aligned with the middle of the star in the central symbol. It passes behind the person of power and in front of the faded citizens, effectively creating a metaphoric barrier between the classes.

The low PD, high IDV Irish Web site has links on the left-hand border that include disclosure of the inspection process, access to various reports, and a link labeled "Freedom of Information." Figure 3 depicts the results of clicking the contact link on the Irish Web site, and Figure 4 on the Indonesian site. The Irish site provides users with a wealth of contact information, including phone and fax numbers, a street address, and a map indicating the office's

location. The Indonesian site, on the other hand, offers no information without a user name and password.

Accommodating Cultural Differences

Unearthing some fundamental differences concerning how people of different cultures view the Web is interesting, but how does it help bridge perceptual gaps? Is it possible to design an interface with universal appeal, pleasing to all cultures? One possible way to accommodate cultural differences would be to design for neutrality, taking any and all precautions to ensure that no one's sensibilities are offended. This approach requires that every color, sound, and piece of information conveyed is so sterile that not a soul from Alaska to Zimbabwe could construe it as inappropriate. If such a feat were even possible, the resulting site would be so devoid of appeal, it likely would have no

Table 3. The Effects of Hofstede's Dimensions on Elements of Web Design

Cultural Dimensions	Suggestions and Considerations for Web Design
Power Distance	**High PD:** Highly structured access to information, tall hierarchies in mental models, prominence given to expertise/authority, great importance placed on security/barriers to information.
	Low PD: Less structured access to information, shallow hierarchies in mental models, prominence given to citizens/customers, less barriers to information, more freedom to explore.
Individualism vs. Collectivism	**High IDV:** motivation based on individual achievement, high tolerance for controversial rhetoric and extreme claims, prominence given to youth and action, emphasis on change, protection of privacy/ personal information, people emphasized in images.
	Low IDV: Motivation based on group achievement, subdued rhetoric/ minimal controversy, prominence given to age and experience, emphasis on tradition/ history, willingness to share personal information, products/inanimate objects emphasized in images.
Masculinity vs. Femininity	**High MAS:** Strong distinction of gender roles, quick rewards for tasks performed, navigation based on exploration and control, motivation through games/competition.
	Low MAS: downplayed gender roles, emphasis on support/ cooperation, motivation through poetry/pleasing visuals.
Uncertainty Avoidance	**High UA:** Simplicity, limited choices, strong mapping/predictability of results, redundant cues (color, typography), low ambiguity.
	Low UA: Complexity, maximal choices, maximal content, less predictable navigation, lots of navigational links.
Long-Term Orientation	**High LTO:** Patience in achieving results, relationships as source of credibility.
	Low LTO: Immediate results, rules and certainty as a source of credibility.

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take advantage of this knowledge. The concepts and suggestions offered concerning how culture affects Web site design are archetypal in nature and do not include a specific course of action. Nevertheless, knowledge acquired in this area, when given the emphasis that it truly warrants, will significantly enhance the viability, vitality, and visibility of Web sites.

Dr. Cook, professor, speaker, author, and consultant, focuses on electronic commerce, information systems, and production/operations management in his numerous conference presentations and published articles. Myke Finlayson is an undergraduate pursuing a degree in management information systems.

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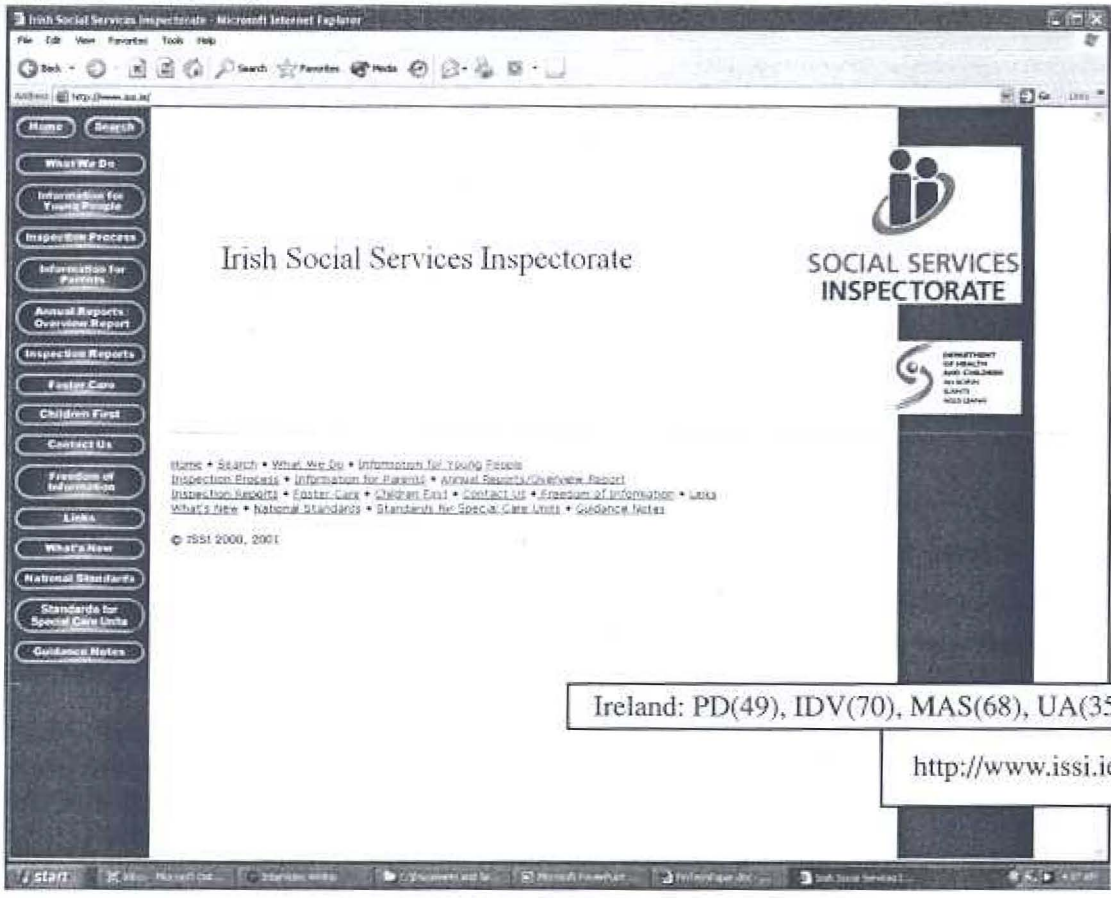
Figure 1: Home Page of Irish Department of Social Services



Ireland: PD(49), IDV(70), MAS(68), UA(35)

http://www.issi.ie/

Figure 2: Home Page of Indonesian Department of Social Services

Indonesia: PD(78), IDV(14), MAS(46), UA(48)

http://www.bkkbn.go.id/web/bkkbnhome.nsf/SIDUGA?OpenForm&Language=E

Figure 3: Contact Information Page for Irish Department of Social Services

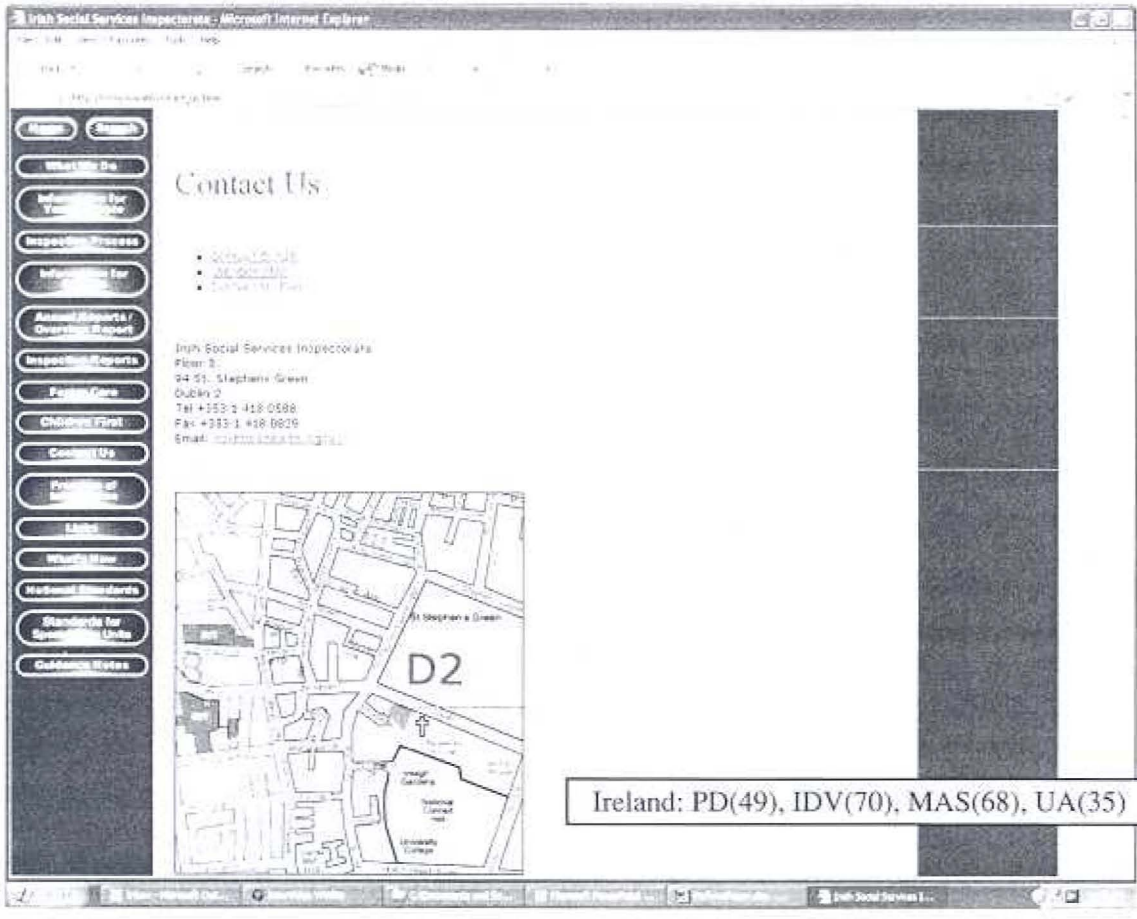
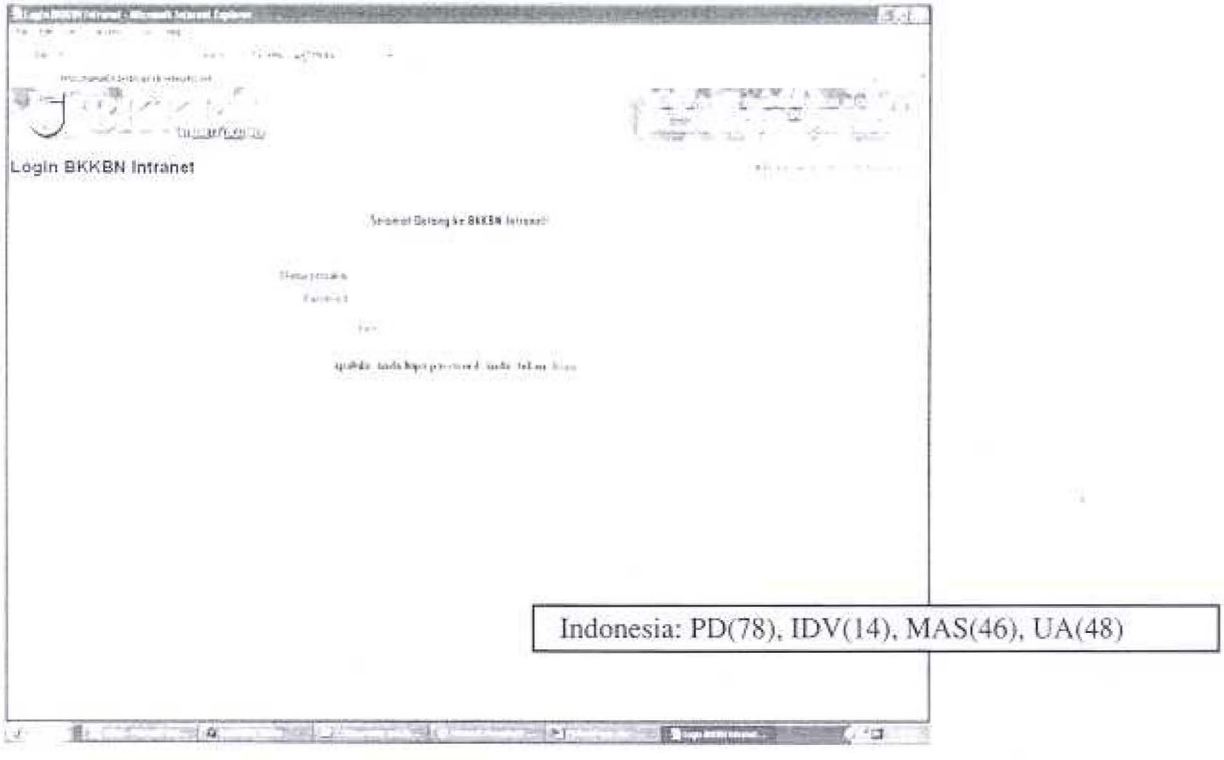


Figure 4: Contact Information Page for Indonesian Department of Social Services



audience to offend. The cliché "you can't please everyone" comes to mind.

Another option would be to implement a separate site for each target audience. This approach undoubtedly allows the flexibility necessary to accommodate the demands of a culturally diverse world, where each site caters to the tastes of a specific subgroup. Unfortunately, the costs would be prohibitive. The dynamic nature of the Web and the frequency with which updates are performed would make regular maintenance a nightmare.

A better idea fuses these two concepts, marrying the generic, ambiguous Web site to the attentive, audience-specific one. This concept hinges on the development of a robust, reusable back-end server that facilitates interaction with a readily customizable user interface (UI). The functionality of the site can then be maintained and updated, and encapsulated from users. Customizations to the UI are implemented independent of the "nuts and bolts" of the site. For example, the UI designed for Indonesia will interact with the mechanics of the site in the exact same way as the UI designed for the Irish market, with the only differences being aesthetic and textual content. This approach allows for a heightened degree of specialization of intellectual resources. Back end code should be designed with full functionality and a range of features in mind. Access to these features can then be filtered through specific user interfaces. Gateways and barriers to information can thus be accordingly built into the UI for each specific audience, leaving the underlying functionality of the Web site unchanged. The ecommerce and software development experts would be free to work unhindered on the back end code, while those more adept at usability issues tackle the nuances of the UI. Furthermore, this approach eliminates delays in development related to the research necessary to determine how to comply with various cultural preferences, as research can be carried on simultaneously with development.

The concepts presented here are broad and archetypal. Design strategies vary widely depending on project specifics. More in-depth and specific research must be conducted. For example, a Web site intended to entertain or educate might not be compatible with the same approach as an e-commerce site. The best way to accommodate cultural differences is to communicate with users and designers local to the intended market. Consulting with design professionals whose intrinsic tastes are common to those of the targeted audience is wise.

Design teams should include a cultural analysis subgroup, which is entrusted with assessing requirements in the target community and establishing standards that conform to the community's prevailing tastes and expectations. If an organization lacks the necessary resources and expertise, it should consider recruiting culture savvy personnel or contracting talent that is native to the audience. Alternately, many third-party firms specialize in globalization and localization of Web sites.

Feedback is an indispensable tool for assessing a site's usability. Creating an interface prototype and establishing usability goals are also important. "Without quantifiable usability goals, it is impossible to measure and assess whether it is usable with a degree of confidence" (Calongne, 2001, p. 43). Further, time spent objectively observing how users interact with the interface is beneficial. Some questions to consider include: Does the page load efficiently? Do the aesthetics employed elicit the desired reaction? Does the navigational scheme facilitate use as intended?

Designers should not underestimate the importance of cultural awareness. Although considerable investment is involved whether the issue is handled internally or outsourced, budgeting for cultural research and development is a prudent and worthy expenditure. Cultural compatibility issues must be addressed in the long run. "Attending to culture differences in product development should be a hot topic, become part of best practices, and eventually be incorporated into industry standards." (Marcus, 2002, p. 27) The sooner cultural attentiveness is incorporated, the quicker the benefits of increased persuasiveness and consumer trust will be reaped.

Conclusion

The Web is a young and rapidly evolving medium for commercial activity. Undeniably, culture should be accounted for when designing Web sites. Hofstede's principles reveal concrete and measurable differences between cultures and provide quantifiable data for assessing preferences and attitudes of some of the world's dominant cultures. Much research still needs to be conducted to learn how Web designers can best

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